DISTRIBUTED GENERATION IN GEORGIA – AN AIR QUALITY REGULATORY PERSPECTIVE

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Overview

- How We Regulate Air Quality (1)
- National Ambient Air Quality Standards (NAAQS) (3)
- Georgia's Air Quality (6)
- Regulation of Distributed Generation (DG) Sources (8)

How Air Quality is Regulated

- EPA Adopts NAAQS
  - NAAQS are set at levels that the EPA judges necessary to protect public health with an adequate margin of safety.
  - Currently there are standards for ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.
- EPA Sets Other Air Quality Goals (Acid Deposition or Visibility).
- EPA Adopts emission standards for specific pollution sources.
- States develop plans (SIPs) to implement emission standards and to attain and maintain NAAQS.

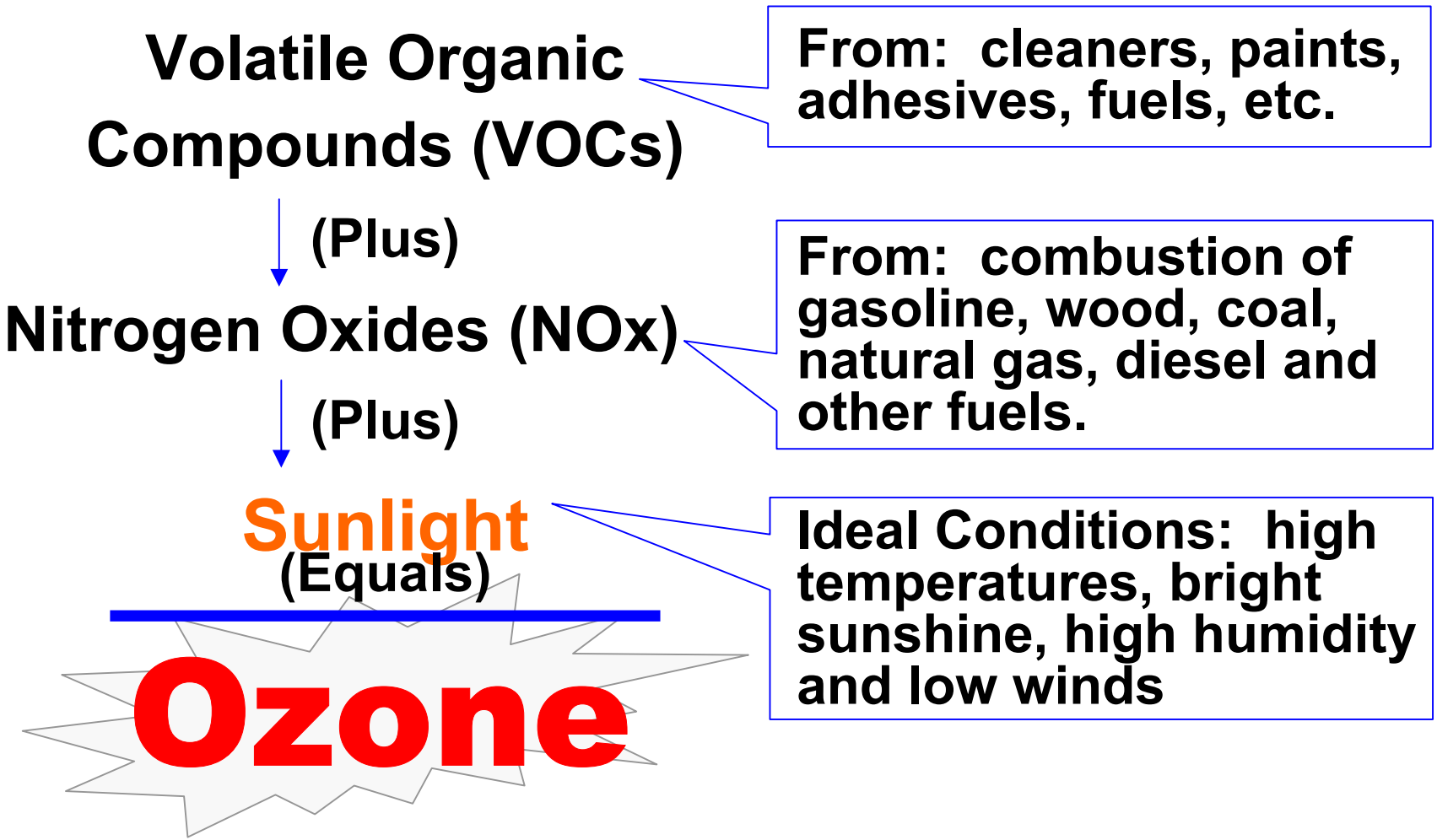
National Ambient Air Quality Standards (NAAQS) – Fine Particulate Matter

- EPA previously regulated particulate matter below 10 microns. Georgia is in compliance with this standard.
- In 1997, EPA adopted a more stringent particulate matter standard that focuses on smaller particles (i.e. below 2.5 microns) that are of greater health concern.
- The monitors for this pollutant are relatively new, however, based on available data, some areas of the state may be out of compliance with the new standard.

National Ambient Air Quality Standards (NAAQS) - Ozone

- The current 1-hr ozone NAAQS is 125 ppb.
- Atlanta has not achieved the 1-hr ozone standard since measurements began.
- The current state rules, plus federal requirements, are designed to attain this standard by 2004.
- The new 8-hr ozone NAAQS is 85 ppb.
- After the 1-hr ozone standard is attained, Atlanta will have to do more to attain the more stringent 8-hr ozone standard.
- Columbus, Macon, and Augusta may become nonattainment areas for the 8-hr ozone standard.

Where Does Ozone Come From?



Georgia's Air Quality

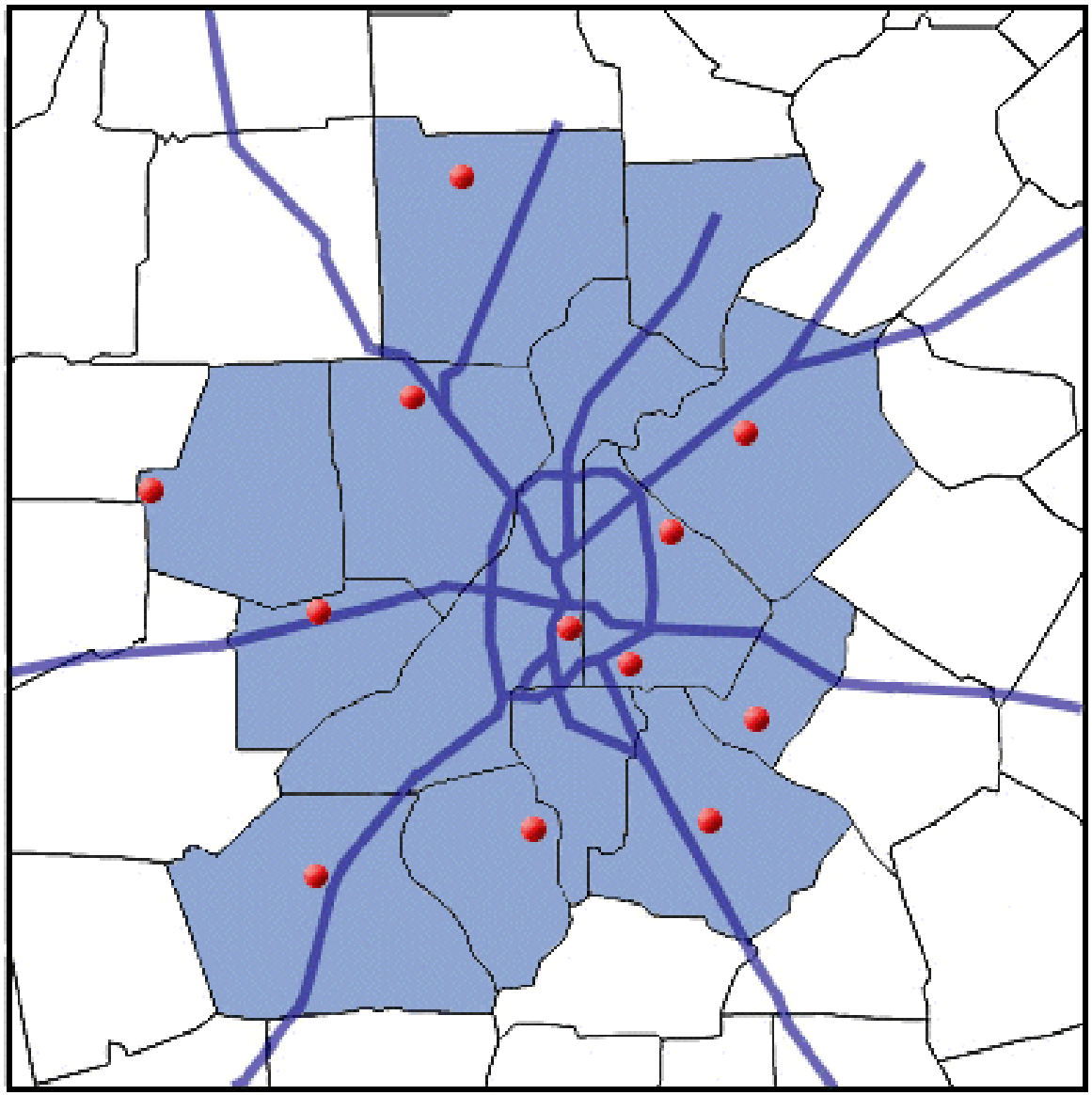
Forecast for Atlanta, Georgia: 09/12/02

http://www.air.dnr.state.ga.us/psg/index.html

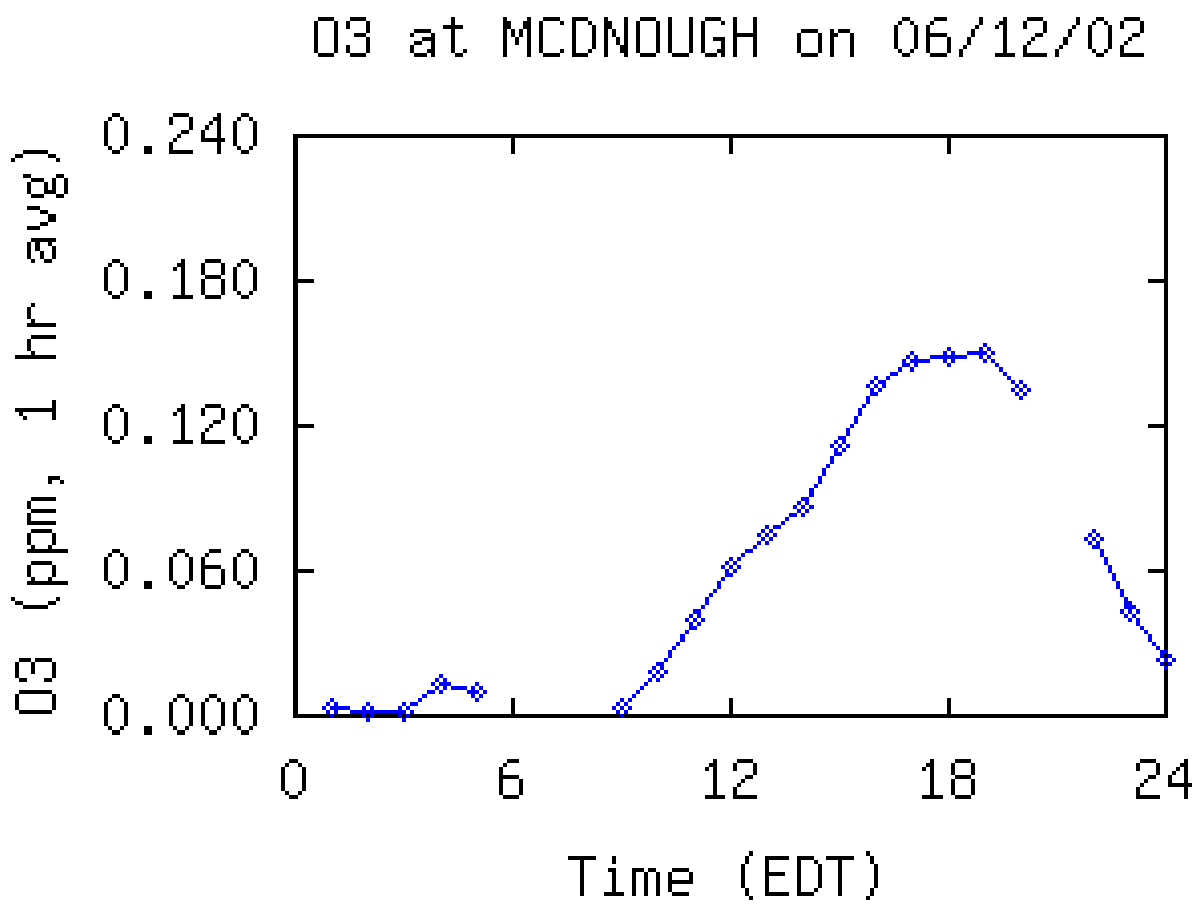
Pollutant: Ozone
Today's AQI Forecast: 101
This corresponds to an ozone concentration of 85 ppb.
Air Quality: UNHEALTHY for Sensitive Groups
In this range the outdoor air is more likely to be unhealthy for more people. Children, people who are sensitive to ozone, and people with heart or lung disease should limit prolonged outdoor exertion during the afternoon or early evening when ozone levels are highest.

Georgia's Ozone Monitors

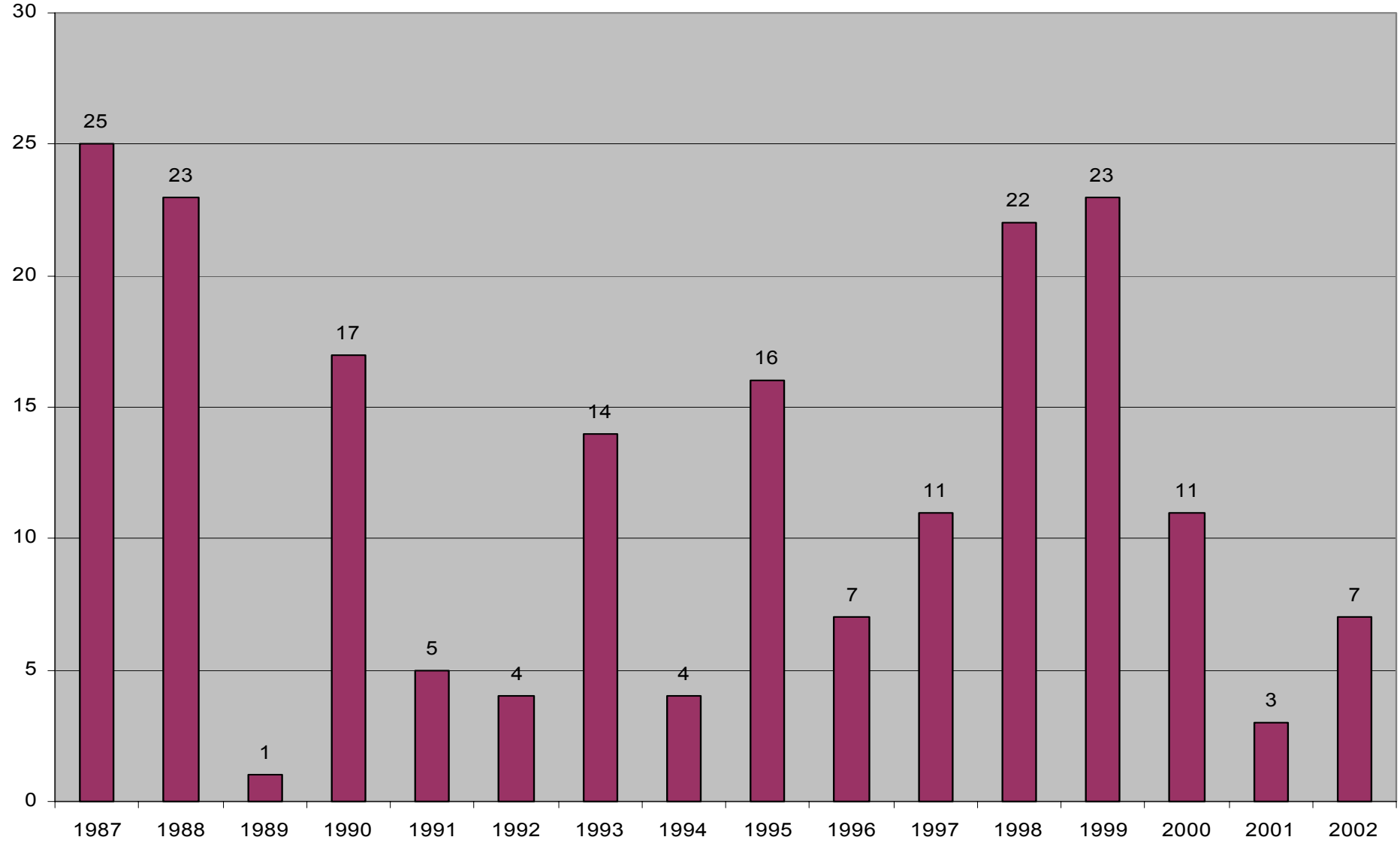
Atlanta's Ozone Monitor Sites



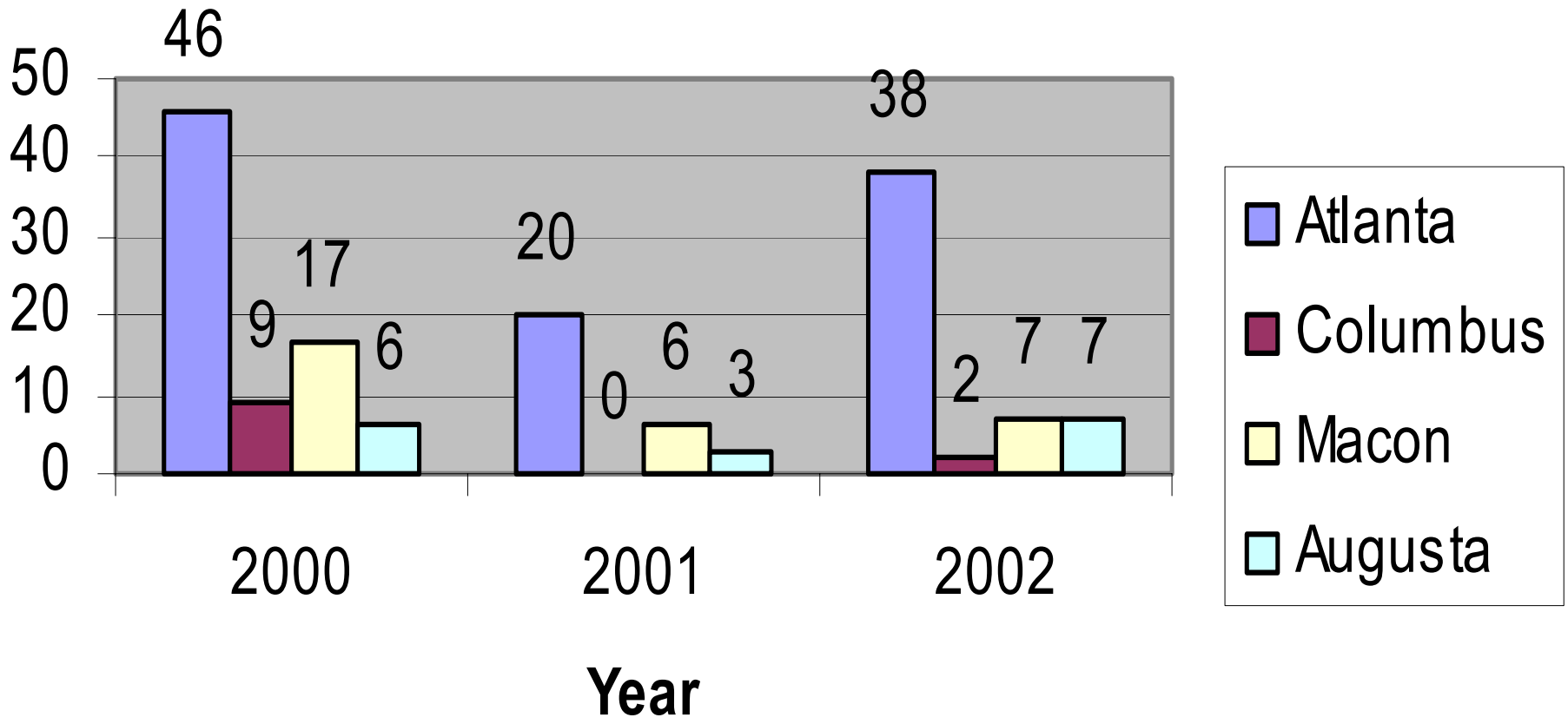
Example Ozone Readings



Atlanta Ozone Nonattainment Area
Days 1-hr Ozone Standard Exceeded



8-hr Ozone Exceedences in Georgia

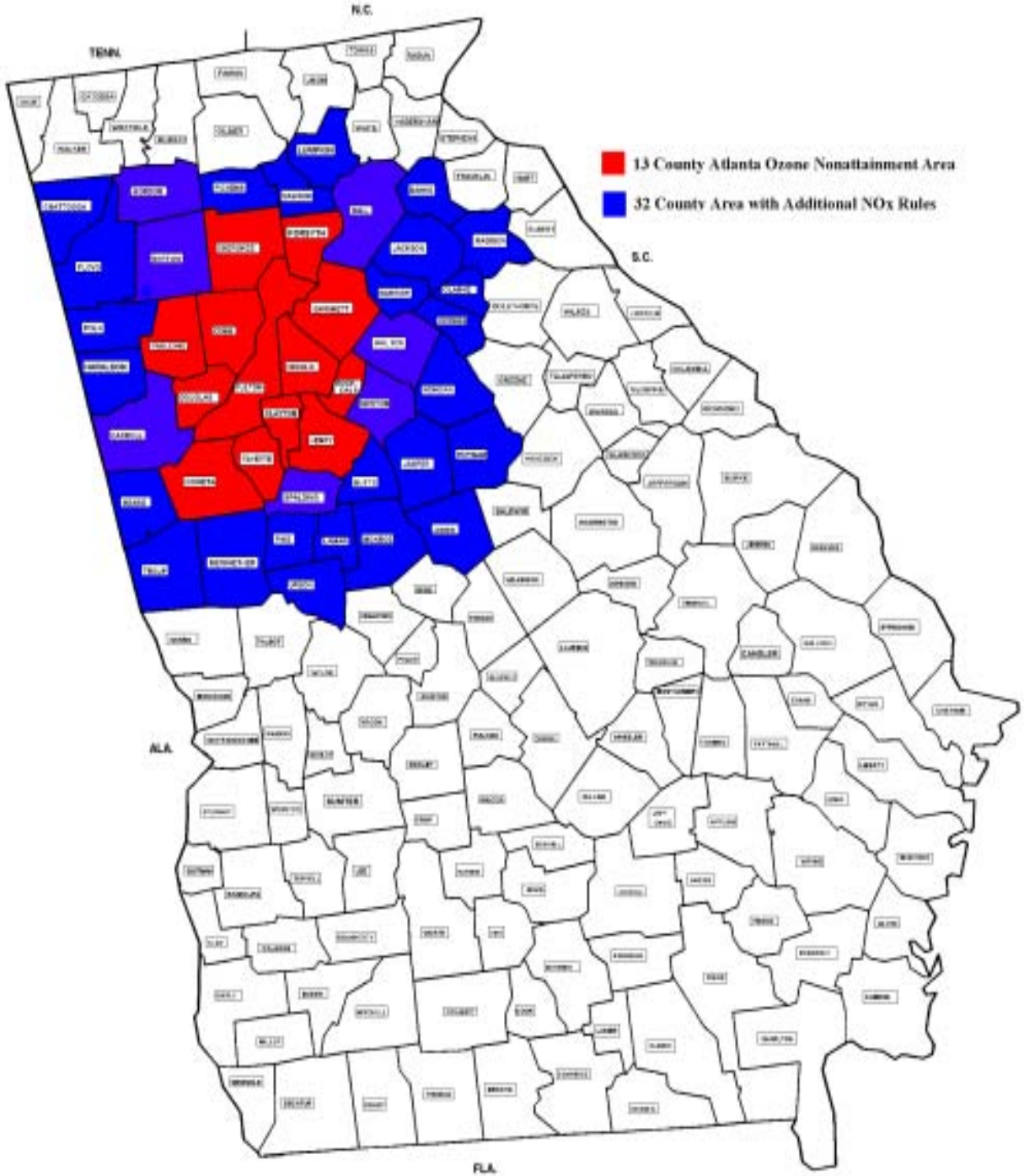


Regulation of DG Sources – Do I Need a Permit?

- In general, the following sources do NOT need an Air Permit:
  - Emergency generators (i.e. the generator is only used in the event of a loss of electrical service to the facility as well as routine testing to ensure proper function and maintenance).
  - Generators that are used for peaking power (or peak shaving) that are not located in the 45-county area and peaking use is less than 200 hours per year.
  - Microturbines.
  - Fuel Cells.

Regulation of DG Sources – Do I Need a Permit?

- In general, the following sources DO need an Air Permit:
  - Generators that are used for peaking power (or peak shaving) and are located in the 45-county area (except existing peaking generators that will revert back to emergency use only before May 1, 2003).
  - Combustion turbines greater than 100 kilowatts.
  - Generators or combustion turbines burning landfill gas.
  - Other distributed generation sources utilizing the combustion and/or gasification of biomass.
- It generally takes about 3 to 6 months to obtain an air permit, depending upon the size and complexity of the source.


N.C.
TENN.
S.C.
ALA.
FLA.
13 County Atlanta Ozone Nonattainment Area
32 County Area with Additional NOx Rules

DG Rule: NOx Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity

- Georgia Rule 391-3-1-.02(2)(mmm)
- Applicability - 100 kW and 25 MW
- Applies in 45 county area around Atlanta

IC Engines - NOx Limits

- 160 ppm, 15% O2, dry basis
  - Installed before April 1, 2000
  - Compliance date = May 1, 2003
- 80 ppm, 15% O2, dry basis
  - Installed on or after April 1, 2000
  - Compliance demonstrated upon startup
- Limits apply May 1 through Sept. 30 each year
- Limits apply to fossil fuel (natural gas and fuel oil) as well as landfill gas or synthetic gas

Gas Turbines – NOx Limits

- 30 ppm, 15% O2, dry basis
  - Installed on or after October 1, 1999
  - Compliance demonstrated upon startup
- Limits apply May 1 through Sept. 30 each year.
- Limits apply to fossil fuel (natural gas and fuel oil) as well as landfill gas or synthetic gas.

Relative NOx Emission Rates from Various Sources of Electricity

- Diesel Generator (uncontrolled 1999) 37 lb/MW-hr
- Ave. GA Power Coal-fired Boiler (1999) 4.5 lb/MW-hr
- Diesel Generator (@80 ppm) 2.7 lb/MW-hr
- Biomass Standard for Green Pricing Program 1.5 lb/MW-hr
- Ave. GA Power Coal-fired Boiler (2003) 1.3 lb/MW-hr
- Small new Combustion Turbine (@30 ppm) 1.3 lb/MW-hr
- Large Simple Cycle CT subject to BACT (‘99) 0.79 lb/MW-hr
- Large Comb. Cycle CT subject to BACT (‘99) 0.10 lb/MW-hr
- Fuel Cell ~ 0.0 lb/MW-hr

Rule (mmm) Exemptions

- Emergency Use Only. Emergency means when electricity is NOT available (i.e. outage has occurred) from local utility. Routine testing & maintenance also OK.
- For additional exemptions please review summary sheet and rule.

Web Sites

- Smog Forecast and Ozone Readings: www.air.dnr.state.ga.us/amp

- Air Protection Rules and Forms: www.air.dnr.state.ga.us/sspp